Spontaneous perforation of the common bile duct in an adult

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Common bile duct (CBD) perforation is a rare entity usually reported in infants due to congenital anomalies. Occasionally it has been reported in adults following invasive procedures in and around the CBD. But spontaneous perforation of CBD occurring in an adult presenting as acute abdomen is an unusual phenomenon. We report one such case where the diagnosis was made preoperatively by ultrasound examination and the patient was salvaged by early operative intervention.

Case

A 65-year-old female presented with epigastric pain, fever and vomiting of five days duration. On examination, the patient was jaundiced. The abdomen was distended with epigastric fullness. There was tenderness in the upper abdomen and a vague lump palpable in the epigastric region. On ultrasound examination, the gallbladder contained multiple stones with a dilated CBD having multiple stones. A huge anechoic area was seen surrounding the suprapancreatic part of the CBD and the duct was seen communicating with this fluid collection, suggestive of perforation of the CBD.

The patient was resuscitated and explored. The gallbladder was thick walled and contained multiple gallstones, and a short and wide cystic duct. The CBD was dilated with multiple stones. There was a collection of about 500 cc of infected bile in the lesser sac, which communicated with the CBD through an indurated opening in the supraduodenal part. Cholecystectomy was done and the CBD was explored. Multiple stones with one big impacted stone in the retroduodenal part were removed from the CBD. The patency of the Ampulla of Vater was checked and a choledochoduodenostomy was done. The lesser sac collection was drained and the cavity irrigated with saline. The wound was closed over a sub-hepatic drain. The patient had a smooth recovery in the post-operative period.

Discussion

Most cases of spontaneous CBD perforation reported in the literature are in infants. The proposed etiological factors are choledochal cyst, anomalous union of the pancreato-biliary ductal system, distal bile duct stenosis or atresia leading to congenital weakness of the CBD.^{1,2} Other rare causes of spontaneous perforation of the CBD are erosion by tumor, weakness by previous choledochostomy or localized ischemia of the CBD wall due to intramural thrombosis, infection or reflux of pancreatic juice.^{3,4,5} Choledocholithiasis with erosion of wall of the CBD and increased intrabiliary pressure has been reported as the most important cause of the spontaneous perforation.⁵ The large size of the impacted stone in the CBD was the possible cause of perforation in the present case.

The presentation of CBD perforation may be acute or insidious, with the latter type being more common and characterized by progressive jaundice, painless abdominal distension and clay colored stools. The acute form is less common and presents with fever, vomiting and signs of fulminant peritonitis.² Rarely, spontaneous CBD perforation may present as gastric outlet obstruction.⁶

Ultrasound findings in CBD perforation are free intra-peritoneal fluid with normal intra and extra-hepatic ducts. Failure to demonstrate the gallbladder reflects decompression of the biliary system due to leakage through perforation. In doubtful cases, the diagnosis can be confirmed with a radioisotope scan.⁷ However, in the present case, the diagnosis was made preoperatively with ultrasound examination only.

Recommended treatment for such cases is T-tube drainage of the common bile duct along with cholecystectomy. In cases with distal obstruction of the CBD, a biliary enteric bypass should be done. Primary suture repair of the CBD is considered unnecessary and even hazardous due to local inflammation.

In conclusion, spontaneous perforation of the extra-hepatic bile duct is a rare but important condition in adults. The awareness of the clinical presentation, expert ultrasound examination combined with scintigraphy, if required, helps in early preoperative diagnosis. Conservative surgery should be the initial plan since most perforations heal spontaneously.

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